

24. *Caluromys philander*, L.

One.

More or less intermediate between *C. philander* and *C. trinitatis*, whose relations to each other are at present difficult to make out, owing to the puzzling amount of variability in the size of their skulls.

25. *Marmosa chloe*, Thos.

Three.

XIX.—*Descriptions of new Heterocera from Costa Rica.*

By W. SCHAUS, F.Z.S.

## Syntomidæ.

*Dasysphinx volatilis*, sp. n.

Body black; two large white spots on collar; paired white spots dorsally on abdomen, and a sublateral row of white spots. Legs with a white spot at joint of tibia and tarsi, the latter streaked with white. Wings hyaline; veins and fringe black. Fore wings: broad terminal whitish streaks between the veins; basal half tinged with reddish orange, darkest on costa, inner margin, and base above submedian; the discocellular inwardly shaded with black. Hind wings: a black point at angle of discocellular; the inner margin broadly black.

Expanse 40 mm.

*Hab.* Volcano Poas; June.*Episcepsis vinasia*, sp. n.

Palpi and legs fuscous black streaked with grey. Frons blackish grey; head posteriorly ochreous. Collar and thorax fuscous black, the former edged in front with ochreous, and with a sublateral ochreous spot. Abdomen metallic blue above, with dorsal fuscous-black hairs; underneath white; fore coxæ ochreous. Primaries fuscous black, the veins greyish. Secondaries deep bluish black; a broad white streak from base in and below cell; a white streak along inner margin in male partly concealed by buff tufts.

Expanse 32 mm.

*Hab.* Juan Vinas, Sixola River.

*Episcepsis gnomoides*, sp. n.

♂. Palpi black, white on first segment. Head black; two white points in front; two red spots behind. Legs fuscous black; fore coxæ white. Collar and thorax fuscous black; a red spot below tegula. Abdomen blue above with basal subdorsal black tufts; underneath ventral white spots on first three segments. Fore wings dark violaceous brown, the veins, a streak in cell, and one in submedian interspace black. Hind wings deep black; a slightly hyaline streak in cell, below it and just beyond it.

Expanse 31 mm.

*Hab.* Sixola River.

Allied to *E. gnomia*, Butler, but the veins black instead of being pale.

*Episcepsis redundata*, sp. n.

Body fuscous brown; two crimson spots on back of head, and a red spot laterally below tegula; fore coxæ crimson. Abdomen brilliant blue dorsally on last segments; underneath with ventral white patches. Primaries fuscous brown, concolorous. Secondaries fuscous black, whitish hyaline below cell and slightly within it, also near cell between veins 2 and 4; underneath with a broad white streak from base to near outer margin.

Expanse 33 mm.

*Hab.* Banana River, Sixola, Tuis.

Also in Nat. Mus., Washington, from Trinidad, Peru, French and British Guiana, Aroa, Venezuela, Santa Rosa, Jalapa, Mexico.

*Episcepsis sixola*, sp. n.

Palpi and legs brown-black. Palpi with a white spot on first segment. White spots at base and end of coxæ; fore coxæ streaked with white in male, with roseate in female. Collar and thorax brown-black, the former with dorsal and lateral red spots. Abdomen dull blue-black, underneath with two rows of white spots. Primaries brown-black, the veins still darker; a vague subterminal broad darker shade. Secondaries black; a short white streak in cell, and a large white patch at base of inner margin; some white scales beyond cell between veins 2 and 5.

Expanse, ♂ 34, ♀ 37 mm.

*Hab.* ♂, Sixola River; ♀, Juan Vinas.

*Episcepsis capysca*, sp. n.

♀. Legs and palpi dark grey streaked with white; fore

coxæ with white streak. Head ochreous spotted with black; the frons blackish with a few white scales. Collar brown-black, with some ochreous shading in front and laterally. Thorax brownish black; a grey line on patagia. Abdomen blue-black; a ventral row of white spots. Primaries dark olive-brown; the veins and a streak in cell and one below it grey; the apex broadly snowy-white. Secondaries bluish black; a semihyaline streak below cell, slightly in it, and also beyond it shortly.

Expanse 36 mm.

*Hab.* Tuis, Costa Rica.

Bears a strong resemblance to *Patreliura capys*, Cr.

*Aclytia albistriga*, sp. n.

Head and thorax black; white streaks on frons and patagia; the first joint of palpi, spots on head behind, and tegulæ outwardly ochreous. Abdomen blue above, white underneath. Coxæ white. Legs fuscous streaked with white. Fore wings black; the base of subcostal and submedian veins tinged with grey; some light blue scales at base of inner margin; an oblique white streak across discocellular from subcostal vein to near tornus. Hind wings blue-black; a broad hyaline streak below cell; a short streak in end of cell, and a patch between veins 2 and 3; a short streak at base of inner margin.

Expanse 31 mm.

*Hab.* Guapiles.

*Agyrta vitrea*, sp. n.

Palpi black streaked with white; the first joint and neck crimson. Frons black with lateral white streaks; back of head red and black. Thorax and abdomen above dark blue with subdorsal white streak; a lateral black line; venter and coxæ white. Legs fuscous streaked with white. Fore wings black shot with dark blue; a light blue basal streak above submedian; a portion of cell, a space between veins 2 and 3, and a broad streak below cell and vein 2 to near outer margin hyaline; a postmedial band from vein 8 to vein 3 near termen, white, semihyaline. Hind wings hyaline; the veins and margins broadly black shot with blue, brightest on costal margin and at tornus. Fringe white at apex and tornus.

Expanse 39 mm.

*Hab.* Guapiles.

*Eucereon consorta*, sp. n.

Palpi black, the tips of each joint with a white spot. Head white. Collar black, with a large creamy spot on each tegula. Thorax white; a black spot posteriorly; a black spot on patagia in front. Abdomen dorsally orange with a large black patch extending on next to last segment, anal segment black; sublateral row of black spots; underneath white, the last two segments black. Legs black, with white rings at joints; fore coxæ black, other coxæ white. Primaries creamy-white; five irregular black patches on costal margin; the first extending to inner margin and enclosing a small white spot at base; the second reaching the median vein, on which are two black points preceding and following this spot; the third crossing cell, and extending between veins 3-5; the fourth reaching vein 5; the fifth much smaller, nearly touching vein 7; an irregular black space on inner margin from base to middle, followed by a small spot surmounted by a black point, an irregular large black mark at tornus; some black terminal spots. Secondaries fuscous, slightly hyaline on more than basal half and towards tornus.

Expanse 40 mm.

*Hab.* Juan Vinas, Tuis, and other localities.

*Eucereon xanthura*, sp. n.

♂. Palpi fuscous. Head black; two orange spots posteriorly. Collar dark grey. Thorax white streaked with grey. Abdomen above black, the dorsal basal hairs tinged with brown; the last segment orange above; underneath with two white bands crossed by black lines; the last two segments below black. Legs grey, streaked with white. Fore wings whitish tinged with pale ochreous at base; the veins black; an antemedial black line angled outwards in cell and submedian interspace, and inwards on median nervure; a postmedial shade from vein 4 to middle of inner margin; a strongly dentate irregular subterminal line, broadest near apex and tornus; an apical black spot, another terminally at vein 2; diffuse black shades on costa at origin of lines; the veins slightly thickened when crossed by lines. Secondaries whitish, the outer margin fuscous.

Expanse 36 mm.

*Hab.* Tuis, Juan Vinas.

In Nat. Mus., Washington, from Mexico, Venezuela, and Petropolis, Brazil.

Allied to *E. leucophæum*, Wlk., but differs in markings of head and thorax.

*Eucereon decorum*, sp. n.

Body fuscous ; broad white streaks on thorax and patagia ; first segment of palpi, a spot under eyes laterally, the back of head, a spot at origin of costa and the two terminal segments orange ; two rows of white ventral spots becoming sublateral towards last segment ; legs streaked with grey. Fore wings light brown to postmedial line, then whitish ; the veins and a streak from near base of median vein to upper angle of cell, and one below submedian, black ; the antemedial fuscous line angled in cell ; the postmedial forming two curves outwardly from costa to vein 3, then incurved to middle of inner margin ; a thick fuscous subterminal and irregular shade ; veins 6, 7, and 8 terminally more broadly black. Hind wings fuscous, the discal area whitish, less so in the female.

Expanse, ♂ 42, ♀ 49 mm.

*Hab.* Tuis, Juan Vinas, Guapiles.

*Eucereon cimonis*, sp. n.

Palpi fuscous, the first joint yellowish. Head dark grey ; paired yellow spots on frons and vertex, and the same colour below eyes, and a similar lateral streak below tegula. Thorax olive-brown streaked with black ; two greyish tufts posteriorly. Abdomen above crimson, except black terminal segment, and a large dorsal black tuft on first three segments, then subdorsal black points on other segments ; a broad black lateral band ; venter, except last segments and coxæ, salmon-pink ; legs fuscous grey shaded with white. Fore wings roseate grey ; the veins and a streak in cell light olive-brown ; the markings black ; four small spots on costa ; three paired spots in cell, the antemedial very small, the medial large, the others at end of cell more widely apart ; two large spots close beyond discocellular followed by two smaller spots ; an oblique broad mark at base of inner margin, followed by a streak ; a streak and two small spots below median, below this a long streak, and three spots between this and submedian, the last surmounted by a spot above the long streak, and with one below it on inner margin coalescing with the basal streak ; a large round spot between 2 and 3, and smaller ones between 3 and 5 ; an outer row of elongated spots between all the veins, broken between veins 3 and 5 into a pair and transverse streak ; a marginal row of large oval spots, and terminal spots on veins. Hind wings fuscous hyaline, the veins and outer margin broadly darker.

*Ann. & Mag. N. Hist. Ser. 8. Vol. vi.*

13

Expanse 43 mm.

*Hab.* Tuis, Juan Vinas.

Also in Nat. Mus. from Aroa, Venezuela, and Paramba, Ecuador.

*Eucercion tessellatum*, sp. n.

♀. Palpi fuscous, with grey spots on first and end of second segment. Head dark grey; a black spot between antennæ; neck, a lateral streak below tegulæ and two spots on head behind, salmon-pink. Thorax dark grey streaked with black. Abdomen above crimson; a basal patch followed by black points, a lateral band and terminal segment black; venter and coxæ salmon-pink. Legs fuscous streaked with grey. Fore wings lilacine grey, the veins concolorous; the spots black; some basal spots and streaks; an antemedial row of spots followed by an elongated pair in cell; four medial spots below cell, the smallest between 2 and 3; two spots at end of cell, followed by large spots, the one on costa elongated, a small one below it, a large one between 5 and 6; two elongated between 3 and 5, and a large one between 2 and 3; an outer row of small spots, the one between veins 2 and 3 much larger, then incurved and elongated to inner margin; large elongated subterminal spots from vein 5 to costa; a row of large oval marginal spots, and terminal black spots on veins. Hind wings fuscous hyaline, the veins and outer margin broadly darker.

Expanse 38 mm.

*Hab.* Juan Vinas.

This species resembles *E. æolum*, Hmps., but is much larger.

*Eucereon zephyrum*, sp. n.

Legs and palpi grey streaked with white. Head grey; a streak between and basal joint of antennæ white; back of head and neck yellow. Thorax white streaked with grey. Abdomen above yellow, next to last segment and a subdorsal streak grey; underneath grey; two bands and anal segment white. Primaries white; the veins, transverse lines and a streak in cell, and submedian interspace grey; the antemedial dentate; the postmedial wavy, incurved below vein 3 to middle of inner margin; from vein 3 to tornus some heavier grey markings; discocellular also more heavily marked; beyond the postmedial a conspicuous white space from costa to tornus has the veins also white; a subterminal broad grey shade from vein 5 to costa; the marginal area suffused with

grey above vein 3. Hind wings white, semihyaline, iridescent; the apex and outer margin narrowly suffused with fuscous.

Expanse 32 mm.

*Hab.* Juan Vinas.

*Eucereon venosa*, sp. n.

Body fuscous; frons whitish; two orange spots on head behind; an orange lateral streak below tegulae; an orange streak on patagia; basal half of venter white; white streaks on legs. Fore wings whitish; the veins and streak in cell and submedian interspace broadly grey, except on a large round white spot beyond the cell; basal half of costal margin and inner margin tinged with orange; a large darker grey suffusion at end of cell and beyond the white spot, this narrowing and forming an indistinct subterminal line. Secondaries whitish fuscous at base becoming darker on outer margin.

Expanse 23 mm.

*Hab.* Juan Vinas.

*Eucereon tenellulum*, sp. n.

♀. Palpi, head, collar, and thorax fuscous grey. Legs fuscous grey streaked with white; two ochreous spots on head; an ochreous streak on patagia. Abdomen fuscous black; the subdorsal basal tufts light brown; the anus ochreous; the first three segments of venter white. Fore wings greyish; antemedial pale ochreous streaks on costal and subcostal veins, and two in cell separated by a long blackish streak, also below median at base, at end of median and commencement of veins 3, 4, and 5, longer streaks above and below submedian; a medial darker shade from costa into cell; a broad postmedial shade, irregular, cut by veins and blackish below vein 2, this followed by a whitish shade broadest at costa to vein 5; a subterminal dark shade widest at costa and at tornus; the outer margin whitish with large terminal dark spots, except veins 2 and 3. Hind wings whitish, the outer margin broadly fuscous.

Expanse 33 mm.

*Hab.* Juan Vinas.

*Hyaleucerea morosa*, sp. n.

♀. Body dull greyish black; the abdomen dorsally on terminal half deep blue-black; head behind and a spot

laterally below eye dark red. Fore wings greyish black, the veins, a streak in cell and one below cell black; a large medial black shade from cell to inner margin; a subterminal black shade, broadest at tornus and between veins 5 and 6; a small spot at base of inner margin tinged with dark blue. Hind wings blue-black; a faint hyaline streak in and below cell.

Expanse 43 mm.

*Hab.* Juan Vinas.

*Hyaleucerea sororia*, sp. n.

Body black; a lateral white streak on frons and below eyes; two orange spots on head behind; an orange streak on patagia; anal segments orange; first three segments of venter white; legs streaked with white. Fore wings black, an ochreous streak on basal half of costa and along inner margin; two whitish streaks in cell; two streaks below cell, the lower one basally ochreous; intervenal streaks on outer part of wing below vein 5, whitish, partly shaded with ochreous; a large black space on costa and about end of cell, with diffuse blackish shade to middle of inner margin; a white spot between veins 5 and 8; the apex blackish with a faint ochreous streak on costa; a small terminal white shade between veins 5 and 6. Hind wings fuscous white, the veins and outer margin black.

Expanse 27 mm.

*Hab.* Juan Vinas.

Allied to *H. costinotata*, Dogn.

**Arctiidæ.**

*Idalus pauperis*, sp. n.

♂. Body ochraceous. Palpi, legs, and fore coxæ slaty black; last three segments of abdomen above black; a row of black sublateral spots.

The female has the last six segments of abdomen above black and a broad lateral black band from base; underneath only the last two segments are black in both sexes. Primaries ochraceous. Secondaries more yellow in tint.

Expanse, ♂ 31, ♀ 39 mm.

*Hab.* Tuis, Juan Vinas.

*Phæomolis mera*, sp. n.

♂. Palpi grey, with white spots on first and second segments. Antennæ grey. Head yellow, some grey on frons.

Collar and thorax grey streaked with white. Abdomen above dark grey, with a white subdorsal line; the last three segments yellow; anus grey; underneath white, the legs streaked with grey. Primaries light grey with darker grey intervenal streaks and veins; two large white semihyaline postmedial spots between veins 3 and 5; terminal white spots on veins. Secondaries grey streaked with dark grey; the costal margin whitish with a reddish-brown spot of androconia.

Expanse 46 mm.

*Hab.* Tuis.

*Prumala tessellata*, sp. n.

♂. Palpi dark brown. Head pale green. Collar and patagia pale green, subdorsally dark brown. Abdomen yellowish, with a large blackish dorsal space extending laterally at base; black transverse lines on yellow portion, especially on last segment. Legs dark grey; fore coxæ orange with a black spot. Primaries pale green with large dark brown spots, one at base not reaching inner margin; antemedial spots from costa to submedian, below which is a short streak; a large spot above discocellular containing a green point; two dark dots close to cell between veins 3 and 5; a broad postmedial band of irregular spots coalescing, except at veins 2 and 4; a small apical spot; a marginal row of small narrow elliptical spots. Secondaries pale buff; black hairs at base and along inner margin; a quadrate blackish spot at end of cell; a large dark spot below apex on outer margin, and a still larger one near anal angle.

Expanse 41 mm.

*Hab.* Cartago, El Sitio.

*Prumala herbosa*, sp. n.

♂. Palpi and tarsi brown. Legs light green. Body light green, the abdomen dorsally red; some brown and red around eyes; fore coxæ partly brown; patagia subdorsally edged with brown. Primaries light green with brownish markings; a small medial spot in cell; the discocellular finely, and a spot above it; a larger antemedial spot crossing cell and contiguous to a large circular mark below cell, which has its edges irregular and extends along vein 2 and submedian to a postmedial irregular band from costa to inner angle; this band is crossed by short darker dashes on veins; a marginal row of small intervenal spots. Secondaries whitish tinged with green; the inner margin roseate; a large brownish spot at anal angle, and a small spot near apex. Some males have

the markings much less developed, the fore coxæ, patagia, and discocellular green; the postmedial band reduced to a line.

The female has a spot and a point in cell; sometimes a spot below cell; the postmedial consisting of a row of spots or points, more conspicuous at inner angle and between veins 5 and 6.

Expanse, ♂ 42-44, ♀ 48 mm.

*Hab.* Juan Vinas and El Sitio.

*Prumala muscosa*, sp. n.

Head green, edged with black posteriorly; underneath and palpi black. Tegulæ and thorax green, the tegulæ and patagia dorsally edged with black. Abdomen black above, yellowish buff below; a lateral row of small black spots; anal hairs and basal segments buff above. Legs blackish, partly streaked with grey. Primaries light green, markings black; some spots at base; black medial spot in cell and on costa; an inwardly curved series of elongated spots from end of cell to inner margin near base; a postmedial row of sagittate spots; marginal quadrate spots between the veins. Secondaries black, thinly scaled on costal half, and tinged with yellowish buff, especially at tips of veins 2, 3, 5, and 6.

Expanse 32 mm.

*Hab.* Tuis.

*Evius cochenouri*, sp. n.

Palpi crimson, fringed in front with dark grey. Head and thorax yellow; some dark grey and crimson laterally. Abdomen crimson above. Body underneath white; fore coxæ crimson; fore legs streaked with crimson. Primaries dark fuscous grey, irrorated with crimson; the outer margin and apex broadly yellow, the two colours separated by a slightly irregular, inwardly curved, crimson line; the costa finely white to beyond middle, with a darker grey streak below it, and a crimson streak on subcostal vein; a crimson spot at base of inner margin; costa crimson towards apex; a sub-terminal grey spot between veins 5 and 6. Secondaries yellowish white suffused with crimson.

The female has the crimson line dividing the colours more deeply incurved at cell, and there is a second grey spot subterminally below vein 5.

Expanse, ♂ 37, ♀ 44 mm.

*Hab.* Juan Vinas, El Sitio.

This species has veins 3 and 5 on secondaries coincident. It is named after Mr. Cochenour, of Juan Vinas, at whose house I took my first specimen.

*Automolis atania*, sp. n.

♂. Palpi yellow on first segment, otherwise black. Head orange; a bluish-black spot on frons and vertex. Tegulae orange, outwardly black, and with a broad subdorsal black streak. Thorax black shaded with dark blue; patagia dorsally orange, outwardly black. Abdomen black; subdorsal blue spots; lateral and sublateral blue spots, and sometimes there is a row of small yellow lateral spots and the basal yellow tufts are placed more dorsally; venter with transverse orange bands on basal half. Legs black; tibiae streaked with grey. Primaries black; costa from base to beyond middle finely orange; a deep yellow streak from near base of inner margin to outer margin between veins 5 and 6. Secondaries: the costal half deep yellow to near apex; the posterior portion black.

Expanse 36 mm.

*Hab.* Juan Vinas, Tuis.

Two specimens have the palpi fringed with yellow, and the fringe on the outer margin of primaries is also yellow, but I do not consider them distinct. This species is figured in the 'Novitates' for 1909, pl. vi. fig. 36, as *Automolis collateralis*, Hamp., which is quite another species.

*Automolis maura*, sp. n.

♂. Palpi black. Frons black, shaded with metallic blue. Vertex orange, with a blue and black spot. Collar orange, with a large black central spot. Thorax black shot with blue; patagia orange, outwardly black. Abdomen black; blue subdorsal spots on last three segments; blue hairs on anus; lateral and sublateral blue spots; ventral transverse blue streaks on first two segments. Legs black; fore coxae blue; blue streaks on tibiae. Wings black. Primaries: an orange streak on basal half of costa; an orange band from near base of inner margin to near termen between veins 6 and 7, where it expands slightly, its front margin somewhat uneven; fringe grey-black. Secondaries: the costa broadly orange; underneath the base of secondaries is either black or with one or two black streaks. Some males have small paired orange spots ventrally on second and third segments. The females all seem to have the orange ventral spots and also a lateral small orange spot near the base.

Expanse, ♂ 39, ♀ 44 mm.

*Hab.* Sitio, Juan Vinas.

Allied to *A. pratti*, Druce, but the band on primaries much narrower.

*Automolis guapisa*, sp. n.

Palpi black, the joints tipped with orange. Frons blue. Vertex orange, with a large black and blue spot. Thorax black. Tegulæ and patagia orange outwardly edged with black, and a subdorsal black spot on tegulæ. Legs black partly streaked with orange; tarsi orange. Abdomen black, with subdorsal blue spots posteriorly; blue lateral and sublateral spots with two paired orange spots near base, the first two lateral and sublateral sometimes coalescing; broad orange ventral spots on basal half of abdomen. Primaries dark purplish brown; the veins yellow; a fuscous streak in cell, and one below vein 2; an orange streak on base of costal margin; an orange streak from near base of inner margin tapering to beyond cell, interrupted and followed by an orange spot between veins 5 and 6; this streak is entire in one specimen. Secondaries black; a broad orange costal fascia not reaching apex.

Expanse 44 mm.

*Hab.* Guapiles.

*Automolis tuisana*, sp. n.

♂. Antennæ pectinated. Palpi white, with some grey in front; tips black and grey; laterally black. Some black around eyes and across frons. Vertex white; some pale ochreous hairs. Thorax white shaded with ochreous; two black subdorsal spots posteriorly. Legs white; the fore and hind tibiæ streaked with black. Abdomen crimson above; a row of small white subdorsal spots; anus and underneath pure white. Primaries: the basal half from costa to vein 3, and below this more extensively to near inner angle, light brown, with intervenal and discal black streaks; some white at base of inner margin; outer portion of wing white, thinly scaled; the costa finely brown; a black spot between veins 5 and 6. Secondaries white shaded with roseate, especially on inner area.

Expanse 43 mm.

*Hab.* Tuis.

*Automolis aletis*, sp. n.

Palpi white below, black above. Head white, tinged with yellow on vertex. Collar white, tinged with yellow. Thorax white; small black paired spots in front and behind, the front pair with a yellowish spot anteriorly; patagia tinged with yellow and roseate. Abdomen white, dorsally crimson except at base and terminal segment; small white subbasal

spots. Legs white, partly streaked with black; fore coxæ tinged with yellow. Primaries white; the costa finely black, and blackish streaks postmedially; two antemedial black spots below cell; two black streaks at end of cell, followed by black spots between the veins close to cell; two long medial black streaks below vein 2, and one below submedian; a subterminal black streak between veins 5 and 6. Secondaries white; the inner margin broadly roseate.

Expanse 38 mm.

*Hab.* Sixola River.

Near *Aut. aleteria*, Schs.

*Automolis vinasia*, sp. n.

Palpi, head, and collar white and grey. Thorax pale yellow; patagia dark lilacine grey, with two white spots. Abdomen above crimson; anal segment and underneath white. Legs white. Primaries deep lilacine grey to beyond cell, darkest along costal and inner margin and to outer margin below vein 3; a short yellow streak in cell; a whitish dot and streak at base; white fringe on inner margin and a white streak below cell; an oblique row of deeply lunular small whitish marks from below vein 4 to inner margin towards base; a white streak on costa beyond middle; apex and outer margin above vein 3 yellow; a small yellow terminal streak below vein 3; vein 4 dark grey, the veins above this ochreous. Secondaries dark lilacine grey; cell and costal margin yellowish white; below yellowish white suffused with dark yellow at base; a dark grey streak along costa and on inner margin; a round dark spot at end of cell.

Expanse 33 mm.

*Hab.* Juan Vinas.

*Automolis taniata*, sp. n.

Palpi black. Head black; metallic-blue spots on frons and vertex; orange at base of antennæ and two orange spots behind. Collar orange, black subdorsally and laterally. Thorax black, shaded with metallic-blue posteriorly; patagia orange edged with black. Abdomen black above; metallic-blue subdorsal spots on last three segments; blue anal tufts; lateral and sublateral blue spots; paired orange spots ventrally on first two segments. Legs black; fore coxæ blue. Primaries orange; front of costa finely black; some black at base; outer margin from middle of inner margin broadly black, shading to greyish black on fringe. Secondaries

black, the costal margin broadly orange. Underneath, the costa of secondaries is more broadly orange and there is an orange streak along inner margin, also a fine black subcostal streak, or the base of the costa is black as in the female.

Expanse, ♂ 33, ♀ 42 mm.

*Hab.* Juan Vinas, Tuis.

Allied to *A. latania*, Dr.

*Automolis excavata*, sp. n.

♀. Body and legs light roseate brown. Abdomen above more deeply tinged with roseate; underneath whitish. Primaries light brown, slightly excavated between apex and vein 5, more deeply below vein 5; a white spot near base above submedian vein; an antemedial and a medial row of spots below cell, indistinct, faintly yellowish, edged with red; a similar spot at end of cell; two large hyaline subterminal spots above and below vein 4; terminal lunular yellowish spots between veins 2 and 5; a terminal whitish spot between 6 and 7, and a faint terminal yellowish spot above and below it.

Expanse 55 mm.

*Hab.* Tuis.

*Melese monima*, sp. n.

♂. Palpi, head, and thorax red; the patagia edged with greyish brown. Abdomen reddish above, tinged with ochreous below. Legs streaked with grey. Primaries ochreous red irrorated with black, chiefly along costa, at end of cell, and on outer margin below vein 4; a small white semihyaline spot just beyond cell between veins 5 and 6; a small spot in cell and three rows of larger irregular spots below cell, ochreous edged with red. Secondaries creamy, semitransparent, very faintly tinged with roseate on inner margin.

Female with a large spot beyond cell reaching costal vein; the apex darker. Secondaries semihyaline rose-colour.

Expanse, ♂ 36, ♀ 42 mm.

*Hab.* Juan Vinas.

*Bertholdia crocea*, sp. n.

Palpi white, with lateral brown spots. Legs brown and white; tarsi white. Head and thorax violaceous brown; the tegulæ edged with white. Abdomen red above, white below; anal hairs white; a lateral row of black spots. Pectus white. Primaries saffron-brown, paler along inner margin and about angle; a white spot on submedian vein at one-third from

base; the hyaline patch with black points on veins; the outer margin dark brown from angle to vein 3, then paler and mottled with grey, preceded above vein 4 by a whitish shade and between veins 5 and 7 by darker brown. Secondaries white, the inner margin suffused with roseate. Underneath, primaries white, a roseate patch in cell; outer margin dull brown above vein 3. Secondaries: a single dark streak at base of costa and crimson hairs at base of both wings.

Expanse, ♂ 41, ♀ 47 mm.

*Hab.* Juan Vinas, Tuis.

This species is Ab. I. of *B. myosticta*, Hamps. Typical *myosticta* has a geminate black streak at base of secondaries below, a character I have not found in any other species of the genus.

#### *Bertholdia fumida*, sp. n.

Altogether darker than *B. crocea*, Schs., the female especially being a dark smoky grey and having a black subdorsal spot on the last segment of the abdomen. The primaries below are entirely dark smoky grey, with only a trace of whitish above the inner angle in the male. Secondaries white, with very little crimson at base of inner margin, which is broadly suffused with smoky black, which in the female extends around the outer margin. The female with a dark point at end of cell.

Expanse, ♂ 42, ♀ 47 mm.

*Hab.* Juan Vinas, Tuis.

#### Noctuidæ.

#### *Elæognatha troctopera*, sp. n.

Palpi grey irrorated with brown; a dark brown lateral streak on second segment. Head and thorax brown. Abdomen dark grey above, whitish grey underneath. Primaries silvery grey shaded with brown; an indistinct wavy ante-medial brown shade, outwardly slightly oblique from costa; a large dark brown median shade on costa extending to just below cell and containing a black streak above cell and one in it, the latter interrupted by a small paler brown spot; discocellular vein buff edged with white; an irregular dark wavy brown postmedial line, somewhat angled beyond cell and much broken below it, shaded on either side with buff; a subterminal wavy white shade forming a large lunule between veins 5 and 2, and below vein 2 perpendicular to angle; blackish terminal spots between the veins; fringe brownish

buff. Underneath with a long streak of androconia in cell; the subcostal with a long fringe of hairs. Secondaries dark brown, the costal and inner margins brownish grey; the outer margin excavated below angle.

Expanse 38 mm.

*Hab.* Carillo; January.

*Elæognatha argentea*, sp. n.

Head, thorax, and legs light grey, irrorated thinly with dark scales; hind tarsi and second joint of palpi streaked with dark brown. Abdomen brownish grey. Primaries light grey, strongly shot with silver from base to postmedial line, which is fine, irregular, incurved, and dentate below cell to middle of inner margin; a broad whiter shade from base of costa to postmedial line below cell; a small, round, velvety brown spot circled with buff in cell, and a silvery-white spot on discocellular; faint brownish medial and apical shades on costa; an irregular subterminal whitish shade; terminal dark spots, largest at inner angle. Underneath with a streak of androconia in cell. Secondaries brownish grey, somewhat metallic; fringe white.

Expanse 46 mm.

*Hab.* Juan Vinas; Feb., June.

*Lophosema purpurascens*, sp. n.

Legs and palpi buff. Head, collar, and thorax grey; the collar laterally brown, separated from the grey by a dark line; patagia inwardly shaded with brown. Abdomen greyish brown. Primaries violaceous brown, with numerous fine dark grey striæ; a little grey and buff at base; the base of inner margin finely black, followed by a grey shade, medially edged above by a short black line; the orbicular and reniform consisting of fine geminate circles of a paler tinge, the latter containing a blackish spot, and below is another small black spot on vein 2; the postmedial very indistinct, oblique from costa, deeply dentate beyond cell and below vein 2, followed by two dark brown streaks beyond cell; a faint, subterminal, irregular, whitish line, and a terminal dark brown line inwardly edged by a whitish line. Secondaries somewhat hyaline at base, shading to dark brownish grey outwardly; the veins dark grey; some dark brown and whitish scales at anal angle.

Expanse 43 mm.

*Hab.* Juan Vinas; June.

*Casandria leucopis*, sp. n.

Head and thorax whitish grey, with scattered black scales and some paler reddish-brown shadings. Abdomen greyish, with subdorsal reddish-brown shades and black irrorations, chiefly ventrally. Primaries grey irrorated with black; faint subbasal and antemedial black lines; reniform round, whitish, circled finely with black; a postmedial paler brownish line, separated from veins 4-8 by a fine, nearly straight, black line; a subterminal row of smoky black cuneiform spots, partly shaded with white; the outer margin shaded with pale reddish brown; a terminal black line. Secondaries white, somewhat hyaline; the outer margin finely blackish grey, extending a little above the veins.

Expanse 24-28 mm.

*Hab.* Abangarez Mines; July.

*Casandria chlorotica*, sp. n.

Body brownish buff, slightly irrorated with black; a transverse blackish line on collar anteriorly. Primaries light brown; a fine black line at base of subcostal, forming a long curve in cell, then wavy to inner margin, resting on this on costa is an annular black line containing a dark point; a large, annular, fine black line at end of cell, within which is the reniform, indistinct, whitish, with a reddish-brown spot beyond it but within the circle; a fine smoky shade beyond the cell and dentate to middle of inner margin, closely followed by the postmedial line, which is fine, black, lunular; this is followed by an indistinct reddish-brown shade; a submarginal geminate row of blackish spots, the inner row rather larger and sagittate; a terminal row of small black spots; four postmedial black points on costa. Secondaries greyish white, the outer margin broadly smoky black; the veins dark; the fringe pale buff.

Expanse 34 mm.

*Hab.* Juan Vinas; Feb., May. Poas; May.

*Casandria arcuata*, sp. n.

♂. Costa of primaries much arched. Body brown; a pair of black spots dorsally on segment before last. Primaries silky brown, the lines darker, very indistinct; the antemedial wavy; the medial curved around cell to middle of inner margin; the postmedial dentate to inner margin near angle; indistinct subterminal spots and fine terminal black points between the veins; a black point at end of cell.

Secondaries silky brown, palest at base; a smoky black streak on discocellular.

Expanse 27 mm.

*Hab.* Guapiles; November.

### Hypsidæ.

#### *Hyalurga sixola*, sp. n.

Palpi, head, and collar black spotted with white. Thorax white with a central black line; patagia streaked with ochreous. Abdomen above with the first and last segments white, otherwise ochreous with a dorsal black streak shaded with white on either side, and a broader black lateral streak; below greyish with transverse white lines; the legs greyish, partly streaked with ochreous and black; tarsi black. Wings whitish semihyaline. Primaries: the veins black; costal, outer margin, and outer half of inner margin narrowly ochreous; the costa finely black and shaded with black along subcostal vein; a black streak from base along submedian, curving at tornus to discocellular, which is also black; some white on basal half of inner margin, and a terminal fine white shade; fringe black and grey; below the margins are black with an ochreous streak on costa from base to near middle, and some ochreous at tornus. Secondaries white, the fringe black.

Expanse, ♂, 44 mm.

*Hab.* Sixola River, March and September. In B. M. from Mexico.

This species in the 'Biologia' is referred to as *H. uria*, Btl.

#### *Hyalurga urioides*, sp. n.

Palpi black streaked with white. Head and tegulæ black spotted with white. Thorax whitish with a central black line; patagia ochreous, dorsally shaded with black. Abdomen above dark grey, with a dorsal black line; laterally and below white with a ventral black band. Legs white streaked with black. Wings white, semihyaline. Primaries: the margins ochreous, edged inwardly and outwardly with black; veins black; a black spot at end of cell, which is also reached by a curved black line from tornus; below the margins are black with an ochreous streak at base and some ochreous at tornus. Secondaries: the outer margin black, containing an orange streak from anal angle to vein 4.

Expanse, ♂, 50 mm.

*Hab.* Tuis, Sixola, Juan Vinas.

Likewise referred to *H. uria*, Btl., in the 'Biologia.'

*Centronia drucei*, sp. n.

Palpi and legs black streaked with white. Frons and vertex metallic blue; white spots around eyes. Tegulae metallic blue edged with dark brown. Thorax blue streaked with brown; patagia dark brown. Abdomen metallic blue above, crimson underneath, banded with black and white. Primaries dark brown; a broad white band from middle of costa to tornus, where it is slightly narrower than on costa and preceded by a crimson spot on costa, and one partly below it at tornus; fringe whitish at apex and at tornus. Secondaries deep blue-black, shot with metallic blue at base, broadly along median vein and narrowly along inner margin; a large red spot on costal margin just beyond middle; a white spot beyond cell between veins 5 and 6, a smaller one below it and a few whitish scales below this; fringe white except from veins 3-6, where it is black. Below the wings are black shot with brilliant light metallic blue at base of primaries and on basal half of secondaries; the white more conspicuous at apices, and on secondaries the white spots are more numerous, forming a curved series towards the inner angle.

Expanse, ♂, 63 mm.

*Hab.* El Sitio, Juan Vinas, Tuis, Tres Rios.

This is the species figured in the 'Biologia' as *Eucycine excellens*, Walk.

*Centronia reedia*, sp. n.

Legs and palpi black streaked with white. Head and thorax metallic blue; some white spots around eyes; patagia edged with dark brown. Abdomen blue above, crimson below banded with black, edged with a few whitish scales. Primaries brown-black above; a broad white band from just beyond middle of costa to tornus, widening beyond cell and then narrowing to tornus, preceded by a red spot on costa and a smaller one at tornus; fringe white at apex and at tornus. Secondaries blue-black shot with brighter blue; a broad white band from costal margin to vein 3, preceded on costa by a small red spot; fringe white except at middle of outer margin. Below the white is more extensive; apices white; a white spot near anal angle.

Expanse, ♂, 61 mm.

*Hab.* Guapiles, Juan Vinas, Tuis, Carillo.

Named after Mrs. W. Reed, of whose hospitality at Guapiles I have the pleasantest recollections.

This species is easily distinguished from *C. drucei* Schs.,

by the white band on hind wings, which starts at vein 8, whereas in *drucei* the spots are all below vein 6.

*Pericopsis fortis*, sp. n.

♂. Head, tegulæ, and thorax black; a large creamy yellow spot anteriorly on patagia. Abdomen red above; a subdorsal and a lateral black streak; a transverse black streak on last segment; underneath yellowish. Primaries dark brown; a semihyaline postmedial space irrorated with brown, broad on costa to below subcostal, narrowing at tornus; this space is outwardly angled between veins 4 and 5, and contains a large brown spot outwardly edged with yellowish at end of cell, and a brownish streak extending upwards from tornus; a small red spot at base of costa, and below it a yellowish spot and short streak; underneath there is a red streak at base of costa, and reddish-brown suffusions above the discal spot, and subterminally from the costa to vein 2, also some indistinct marginal whitish spots. Secondaries semihyaline, the veins black; the costal margin brown, with a reddish streak below vein 7 in cell; the inner margin ochreous clothed with long dark brown hairs; a broad subterminal ochreous band inwardly edged with black; the outer margin black, inwardly dentate, and containing a row of small white spots. Underneath the inner and costal margins, also the subterminal shade, are more of a reddish tinge.

Expanse 79 mm.

The ♀ has the semihyaline space more opaque and forming more of a curve on its inner side; it is distinctly yellowish irrorated with brown, and the brown shade above tornus is more distinct, bifurcating below discal spot. The secondaries are ochreous, and the veins only black beyond an outer irregular black line; the outer margin as in the ♂, a few black hairs on inner area. Underneath there is some yellow on primaries near the base.

Expanse 84 mm.

Allied to *P. lygdamis*, Druce, of which I have both sexes, but displaying distinct characters.

*Hab.* Tuis, Carillo, Juan Vinas.

*Pericopsis guapa*, sp. n.

♀. Palpi, head, and tegulæ black spotted with white. Thorax dark brown; white spots anteriorly and posteriorly; the patagia with a black streak. Legs black streaked with white. Abdomen reddish brown above; a black subdorsal line; a lateral black band divided by a fine grey line; under-

neath yellowish with reddish-brown hairs at anus. Primaries above blackish brown; a marginal row of white spots; a row of indistinct pale streaky spots from costa across end of cell, and two subterminal spots below vein 2; a row of five semi-hyaline whitish spots from costa beyond cell to vein 3. Secondaries reddish brown; the veins and scattered scales at base black; the costa narrowly black, the outer margin broadly black with a row of creamy-white spots. Underneath the primaries are black, marked as above; the secondaries have a red spot or streak at base of costa, sometimes no black irrorations and some yellowish spots beyond the cell contiguous to the black outer margin.

Expanse 66 mm.

*Hab.* Guapiles and Bugaba.

This species is allied to *P. ithomia*, Feld., and at first I thought it might be the ♀ of that species, but Mr. Druce has a ♀ similar to the ♂ in his collection.

*Pericopis viuda*, sp. n.

♀. Head and thorax dark brown. Legs brown streaked with yellow. Abdomen above ochreous, divided into a double row of large spots by a broad black subdorsal band and narrow transverse black lines; laterally black with a yellow line, interrupted by black transverse lines; underneath yellow banded with black; anus red. Primaries above brown, darkest on basal half, with a large blackish-brown spot in cell; one beyond cell and reaching costa; a subapical inwardly-curved shade and a subterminal shade from vein 3 to inner margin; outer margin also darker, with some curved lines between the veins faintly yellowish and preceded by a reddish-brown shade, very faint and indistinct. Underneath ochreous and yellow, the veins black; some red shading at base of costa; a black band crossing cell obliquely to median vein, then nearly straight to inner margin; a large black spot beyond cell from costa to vein 3; the subterminal black shades followed by a broken ochreous-brown shade; the outer margin irregularly black with a deeply wavy, broken, white line. Secondaries above and below ochreous, the veins black; the discocellular heavily black; a broad postmedial irregular black band; the outer margin black, inwardly dentate, and containing white spots between the veins.

Expanse 105 mm.

*Hab.* Tuis.

The ♂ of this fine species remains to be discovered.

*Pericopsis perplexa*, sp. n.

♂. Legs black streaked with grey; fore coxæ yellow. Head, tegulæ, and thorax black; white spots on head and tegulæ; a white streak on thorax and on patagia. Abdomen above dark grey; a subdorsal and a lateral black streak; underneath whitish; anal hairs orange. Primaries smoky black, darkest on inner margin; a reddish streak at base of costa; semihyaline greyish streaks in and below cell, cut by an oblique blackish line; a longitudinal black line in cell; the broad oblique shade at end of cell, mottled with greyish from vein 2 to vein 4; four large whitish semihyaline spots subapically from veins 3-7; a marginal row of white spots. Secondaries whitish, semihyaline; the veins, costal and outer margins deep black, the latter with white marginal spots; a black shade across discocellular from costa to outer margin between veins 3 and 4; the inner area with blackish suffusions. Underneath the hyaline portions are whiter; red spots at base of costal margins.

Expanse 59 mm.

*Hab.* Sixola River.

This species may be the ♂, though so very different, of *Pericopsis guapa*, Schs., and they are from different localities.

*Phaloe levisi*, sp. n.

♂. Legs and palpi black streaked with white. Head black spotted with white. Tegulæ spotted with red. Thorax dark brown; two white spots anteriorly. Abdomen black, a few white scales posteriorly on segments above; underneath banded with white. Primaries brown, the veins blackish; a red spot at base of costa, and a red streak beyond it; a semihyaline deep greenish-yellow streak across cell from costal vein to below vein 2; a similar curved band beyond cell, cut into four spots by the veins. Secondaries with the discal area from base deep greenish yellow, semihyaline; the margins very broadly black. Below the wings are black; a crimson streak at base of primaries; on secondaries a white streak on basal half of costa and another on basal half of inner margin.

Expanse 49 mm.

♀. On primaries only a broad semihyaline greenish-yellow band beyond cell narrowing to a point at tornus. Secondaries dark blue; a narrow curved semihyaline band well beyond cell, cut by the dark veins. Below a white spot at tornus on primaries; fringe white on secondaries near tornus.

Expanse 62 mm.

*Hab.* El Sitio, Juan Vinas.

There are three distinct forms of what may prove to be the same species: *Phaloe ninonia*, Druce, with the markings white; *Phaloe cotta*, Druce, with the markings pale yellow; and *Phaloe levisi*, with the markings greenish yellow.

Named after Mr. Lewis, of El Sitio.

XX.—*Additional Notes on a Collection of Land-Shells from Muswar Island, New Guinea.* By HUGH C. FULTON.

*Papuina antiqua*, Ad. & Rve.

Additional material from Muswar Island includes specimens which confirm the synonymy given in my former paper \*; it consists of white and of uniform pale yellow specimens, the number of whorls varying from  $4\frac{3}{4}$  to  $5\frac{2}{3}$ . In the description of *P. horderi*, Sowb., it is said to have 6 whorls, but after having examined the type specimen in the British Museum, I find it should really be  $5\frac{1}{2}$ , agreeing with the figure.

The following measurements will give some idea of the variation in size and form of this species:—

Maj. diam.	$27\frac{1}{2}$ ,	alt.	$31\frac{1}{2}$ mm.
„	$23\frac{1}{2}$ ,	„	34 „
„	29,	„	$32\frac{1}{2}$ „
„	30,	„	31 „

*Papuina pratti*, Fulton.

Further specimens show that this species is excessively variable in form, as the following measurements demonstrate:—

Maj. diam.	30,	alt.	20 mm.
„	30,	„	18 „
„	25,	„	15 „
„	25,	„	18 „
„	$21\frac{1}{2}$ ,	„	20 „

Two varieties are worthy of note: in one the colour-band is almost or entirely lacking; the other is typical in form and coloration, but is thinner, and the interior of the aperture is strongly granular, perhaps the result of some disease suffered by the mollusc.

\* Ann. & Mag. Nat. Hist. ser. 8, vol. v., April 1910, p. 370.